With an estimated world production of capacity of 377,000 metric tons in 2006, Propionic Acid is an important organic acid that you may never have heard of. Propionic Acid – which occurs naturally in apples, strawberries, grains, cheese, and human sweat – is mainly used as a mold inhibitor for various animal feed and as a preservative in cheeses and baked goods to prevent mold. It is also a significant precursor in many industrial processes such as pharmaceuticals, plastics, plasticizers, textile and rubber auxiliaries, dye intermediates, as well as flavorants and cosmetics. Our group has designed a chemical plant for the production of Propionic Acid with a projected output of 33,000 metric tons. The initial feedstock will comprise of Sygnas (a mixture of CO and H­2) and Ethylene, which will react in a process known as carbonylation in the presence of a catalyst to produce Propionaldehyde. The Propionaldehyde will then be oxidized to produce Propionic Acid. The market demand for Propionic Acid is expected to grow at around 2.3% per year regardless of the state of the economy since food production and preservation is highly dependent upon it. With a steadily increasing market price and demand for Propionic Acid along with its marketability in other industrial processes makes this a realistic and competitive option. The market demand for Propionic Acid and its high price relative to our cheaper reactants and catalysts will help in making our chemical production plant a successful endeavor that should become economically efficient once meeting our break-even point.